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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| EXAMINER |
|---|
| SHEW, JOHN |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2664 | 8 |

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

| | Application No. | Applicant(s) |
|---|---|---|
| **Office Action Summary** | 09/771,162 | JONAS ET AL. |
| | Examiner | Art Unit | |
| | John L Shew | 2664 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**.          2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
   closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☐ Claim(s) _____ is/are pending in the application.

  4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20 and 22* is/are rejected.

7)☒ Claim(s) *21* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01/26/01* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

  a)☐ All   b)☐ Some *  c)☐ None of:

  1.☐ Certified copies of the priority documents have been received.

  2.☐ Certified copies of the priority documents have been received in Application No. _____.

  3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
     application from the International Bureau (PCT Rule 17.2(a)).

  * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date *7*.

4)☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

# DETAILED ACTION

## *Drawings*

1.     The drawings are objected to under 37 CFR 1.83(a) because

Fig. 1 and Fig. 2 fail to show descriptive labels as described in the specification.

Any structural detail that is essential for a proper understanding of the disclosed

invention should be shown in the drawing. MPEP § 608.02(d).

2.     The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4)

because Fig.2, reference character "120" has been used to designate both Channel and

Interior Component of Wireless Modem 110.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to

the Office action to avoid abandonment of the application. Any amended replacement

drawing sheet should include all of the figures appearing on the immediate prior version

of the sheet, even if only one figure is being amended. The figure or figure number of an

amended drawing should not be labeled as "amended." If a drawing figure is to be

canceled, the appropriate figure must be removed from the replacement sheet, and

where necessary, the remaining figures must be renumbered and appropriate changes

made to the brief description of the several views of the drawings for consistency.

Additional replacement sheets may be necessary to show the renumbering of the

remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in

the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the

drawing figures. If the changes are not accepted by the examiner, the applicant will be

notified and informed of any required corrective action in the next Office action. The

objection to the drawings will not be held in abeyance.

## *Specification*

## *Claim Rejections - 35 USC § 103*

3.      The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-8, 22, are rejected under 35 U.S.C. 103(a) as being unpatentable over Byers

et al. in view of Data-Over-Cable Service Interfaces Specifications.

Claims 1-8, 22, Byers teaches a method of upstream channel transmission by a

wireless modem terminal (FIG. 3) referenced by a modem equivalent subscriber

terminal upstream beam expander 335, of a plurality of wireless modems (FIG. 1)

referenced by subscriber terminals 21 22 25 43 and 44, in communication with a

wireless hub (FIG. 1) referenced by Central Hub 300, in a broadband wireless access

system (Abstract lines 1-4) referenced by free space broadband access network.

Bryers teaches said modems and said hub are at least part of a broadband wireless

access system (FIG. 1, Abstract lines 1-4) referenced by Subscriber Terminals

representative of modems and Central Hub form a optical broadband access network.

Byers does not teach synchronizing the modem with a hub on a downstream channel,

by synchronizing the symbol timing, forward error correction framing, recognition of a

synchronization message at the modem, receiving at the modem on the downstream

channel at least one message comprising information regarding parameters for

communicating over each of a plurality of upstream channels, utilizing one upstream

channel of the plurality of upstream channels to communicate from the modem to the

hub for one burst, transmitting from the hub to the modem on the downstream channel

at least one message regarding a change to some of the parameters for communicating

over at least some of the plurality of upstream channels, utilizing another upstream

channel of the plurality of upstream channels for another burst to communicate from the

modem to the hub based upon the change to some of the parameters for

communicating over each of the plurality of upstream channels, the step of utilizing one

upstream channel of the plurality of upstream channels comprises utilizing the one

upstream channel based upon an assignment to the one upstream channel in the.

*Clm 2*

message comprising information regarding the parameters for communicating over

each of the plurality of upstream channels, the step of utilizing one upstream channel of

the plurality of upstream channels comprises utilizing the one upstream channel based

upon a selection of the one upstream channel at the modem based upon the message

*Clm 3*

comprising information regarding the parameters for communicating over each of a

plurality of upstream channels, a message comprising information regarding the

parameters for communicating over each of a plurality of upstream channels includes a

priority parameter, the step of utilizing the one upstream channel based upon the

*Clm 4*

selection of the one upstream channel at the modem comprises making the selection

based upon a priority value, the modem communicates utilizing the one upstream

channel and the another upstream channel based upon instructions contained in the at

*Clm 5*

least one message comprising information regarding the parameters for communicating

*Clm 6*

over each of the plurality of upstream channels, the parameters comprise at least one of

signal power, frequency and timing, the step of utilizing another upstream channel

comprises utilizing at least one other upstream channel of the plurality of upstream

channels for other communication bursts from the modem to the hub, switching

*Clm 7*

between the one upstream channel and the other upstream channels based on the

parameters for communicating over each of the plurality of upstream channels,

*Clm 8*

parameters include a channel identification and a mini-slot designation for each

communication burst.

Data-Over-Cable System Interface Specifications Radio Frequency Interface

Specification SP-RFI-I05-991105, hereafter referenced as DOCSIS RFI05, teaches

synchronizing the modem with a hub on a downstream channel (Page 93 Section 6.5.1

lines 1-4) referenced by Time Synchronization of downstream management messages

from the hub Cable Modem Termination System to Cable Modem, by synchronizing the

symbol timing (Page 8 Section 2.3 lines 1-4) referenced by physical layer parameter

symbol rate, forward error correction framing (Page 8 Section 2.3 lines 1-4) referenced

by physical layer parameter forward error correction, and recognition of a

synchronization message at the modem (Page 93 Section 6.5.1 lines 1-4, Page 64

Section 6.3.2.1 lines 1-3) referenced by Cable Modem receiving SYNC message to

compare the timestamp, receiving at the modem on the downstream channel at least

one message comprising information regarding parameters for communicating over

each of a plurality of upstream channels (Page 100 Section 7.2.2 lines 1-5, Page 64

Section 6.3.2.2 lines 1-3) referenced by the Cable Modem waiting for an Upstream

Channel Descriptor message to retrieve a set of transmission parameters for an

upstream channel with periodic transmission for all available upstream channels,

utilizing one upstream channel of the plurality of upstream channels to communicate

from the modem to the hub for one burst (Page 21 Section 4.2.1 lines 1-10) referenced

by burst modulation format of upstream channel from the Cable Modem, transmitting

from the hub to the modem on the downstream channel at least one message regarding

a change to some of the parameters for communicating over at least some of the

plurality of upstream channels (Page 114 Section 7.2.13 lines 1-5) referenced by the

hub CMTS transmission of a UCD message with new parameter values, and utilizing

another upstream channel of the plurality of upstream channels for another burst to

communicate from the modem to the hub based upon the change to some of the

parameters for communicating over each of the plurality of upstream channels (Page

114 Section 7.2.14 lines 1-4) referenced by changing upstream channel through a

Upstream Change Channel Request message from CMTS to CM.

DOCSIS RFI05 teaches the step of utilizing one upstream channel of the plurality of

upstream channels comprises utilizing the one upstream channel based upon an

assignment to the one upstream channel in the message comprising information

regarding the parameters for communicating over each of the plurality of upstream

channels (Page 101 Figure 7-3) referenced by collecting UCD messages representative

of parameter sets for a plurality of upstream channels with selection of a first channel

representative of a channel assignment and waiting for a UCD with a good upstream

descriptor representative of the information regarding the parameters of the upstream

channel.

DOCSIS RFI05 teaches the step of utilizing one upstream channel of the plurality of

upstream channels comprises utilizing the one upstream channel based upon a

selection of the one upstream channel at the modem based upon the message

comprising information regarding the parameters for communicating over each of a

plurality of upstream channels (Page 101 Figure 7-3) referenced by selecting a first

channel from a plurality of channels in a channel list based upon collecting UCD

messages with parameter information for each channel.

DOCSIS RFI05 teaches a message comprising information regarding the parameters

for communicating over each of a plurality of upstream channels includes a priority

parameter (Page 139 Section C.7.6.1.4 lines 1-6) referenced by the Upstream Channel

Priority configuration setting, the step of utilizing the one upstream channel based upon

the selection of the one upstream channel at the modem comprises making the

selection based upon a priority value (Page 124 Section 9.2.1 lines 1-6) referenced by

the access rules for a grant of contention space for all high-priority data for a group of

Cable Modems.

DOCSIS RFI05 teaches the modem communicates utilizing the one upstream channel

and the another upstream channel based upon instructions contained in the at least one

message comprising information regarding the parameters for communicating over

each of the plurality of upstream channels (Page 101 Figure 7-3, Page 65 Figure 6-15)

referenced by Cable Modem selecting a channel and the associated UCD for the

parameter description wherein the UCD specified the channel through the Upstream

Channel ID field.

DOCSIS RFI05 teaches the parameters comprise at least one of signal power,

frequency and timing (Page 22 Section 4.2.1 lines 1-5, Page 66 Table 6-14) referenced

by UCD channel parameters Burst Descriptor to establish an estimate of received signal

power, Frequency and Preamble Pattern to establish the timing.

DOCSIS RFI05 teaches the step of utilizing another upstream channel comprises

utilizing at least one other upstream channel of the plurality of upstream channels for

other communication bursts from the modem to the hub (Page 21 Section 4.2.1 lines 1-

10, Page 101 Figure 7-3) referenced by the selection of next channel in the event of an

unsuccessful ranging with the selection based on a channel list wherein the channel

burst is determined by the upstream transmission parameters, and switching between

the one upstream channel and the other upstream channels based on the parameters

for communicating over each of the plurality of upstream channels (Page 114 Section

7.2.14) referenced by change in upstream channel based on traffic balancing or noise

avoidance which is associated to the upstream parameters.

DOCSIS RFI05 teaches said parameters include a channel identification and a mini-slot

designation for each communication burst (Page 65 Figure 6-15) referenced by UCD

parameters Upstream Channel ID and Mini-Slot Size.

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to incorporate the DOCSIS RFI05 radio frequency interface to the wireless

broadband network of Byers for the purpose of high speed data streams. The wireless

broadband network of Byers must include synchronization techniques to align

communications between the Central Hub and Subscriber Terminals. It is obvious to

use the sychronization interface provided by the DOCSIS RFI05 to optimize the

parameters for maximum bandwidth of the broadband access system.

4.      Claims 9-14, 18-19, are rejected under 35 U.S.C. 103(a) as being unpatentable

over Byers and DOCSIS RFI05 as applied to claims 1-8 and 22 above, and further in

view of Quigley et al.


Claims 9-14, 18-19, Byers and DOCSIS RFI05 teach a wireless broadband system for

digital-over-cable access.  Bryers teaches said modem and said hub are part of a

broadband wireless access system (FIG. 1, Abstract lines 1-4) referenced by Subscriber

Terminals representative of modems and Central Hub form a optical broadband access

network.

Byers and DOCSIS RFI05 does not teach the step of calibrating parameters of the

plurality of upstream channels, parameters include at least one of power, timing and

frequency offset, the step of calibrating comprises the steps of measuring the

parameters received by the hub, sending a correction message from the hub to the

modem, changing the parameters at the modem, allocating each of said plurality of

upstream channels to different of said plurality of modems for communication bursts on

a predetermined schedule, calibrating parameters of each of the plurality of upstream

channels for each of the modems using the communication bursts between each

respective modem and hub.

Quigley teaches the step of calibrating parameters of the plurality of upstream channels

(Paragraph [0485] lines 1-9) referenced by ranging calibration responses for slot timing,

carrier frequency and power corrections between a headend hub and a cable modem.

Quigley teaches parameters include at least one of power, timing and frequency offset

(Paragraph [0485] lines 1-9) referenced by ranging calibration responses for power

corrections, slot timing corrections and carrier frequency corrections.

Quigley teaches the step of calibrating comprises the steps of measuring the

parameters received by the hub (Paragraph [0485] lines 1-9) referenced by ranging

calibration initiated by the headend for measurement and determination of corrections,

sending a correction message from the hub to the modem (FIG. 60) referenced by

Reprovision Msg 407 from the headend HE to the subscriber unit SU cable modem, and

changing the parameters at the modem (FIG. 60) referenced by Reprovision Response

Msg 409 for parameter corrections confirmation from the SU to the HE.

Quigley teaches a method of calibrating a modem in a communication system (FIG. 2,

Paragraph [0485] lines 1-9) referenced by Cable Modem 12 of communication system

HFC Network 1010, comprising the steps of measuring parameters of messages

received by a hub communicating with said modem (Paragraph [0485] lines 1-9)

referenced by ranging calibration initiated by the headend for measurement and

determination of corrections, sending a correction message from the hub to the modem

(FIG. 60) referenced by Reprovision Msg 407 from the headend HE to the subscriber

unit SU cable modem, and changing the parameters at the modem (FIG. 60) referenced

by Reprovision Response Msg 409 for parameter corrections confirmation from the SU

to the HE.

Quigley teaches parameters include at least one of power, timing and frequency offset (Paragraph [0485] lines 1-9) referenced by ranging calibration responses for power corrections, slot timing corrections and carrier frequency corrections.

Quigley teaches allocating each of said plurality of upstream channels to different of said plurality of modems for communication bursts on a predetermined schedule (Paragraph [0506] lines 1-17) referenced by a schedule of a constant bit rate service for another modem associated to grants on a periodic interval, and calibrating parameters of each of the plurality of upstream channels for each of the modems using the communication bursts between each respective modem and hub (FIG. 1, Paragraph [0485] lines 1-9) referenced by ranging calibration initiated by the headend for measurement and determination of corrections sent to the respective cable modem over which the channel calibration is performed.

Quigley teaches parameters include at least one of power, timing and frequency offset (Paragraph [0485] lines 1-9) referenced by ranging calibration responses for power corrections, slot timing corrections and carrier frequency corrections.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the headend/modem calibration of Quigley to the wireless broadband data-over-cable system of Bryers and DOCSIS RFI05 for the purpose of more robust enhanced transmissions. The calibration of the transmission parameters optimizes the channel bandwidth for maximum throughput.

5.      Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Byers,

DOCSIS RFI05 and Quigley as applied to claims 1-14, 18-19 and 22 above, and further

in view of Humphrey et al.


Claim 20, Byers, DOCSIS RFI05 and Quigley teach a wireless broadband data-over-

cable system with calibration.

They do not teach minimum allocation rate. Humphrey teaches said predetermined

schedule is a minimum allocation rate assigned to each modem (FIG. 5, Column 1

lines6-12, column 7 lines 54-65) referenced by a network adaptor representative of a

modem, using a Memory 364 for schedule control with bandwidth allocation based on a

minimum allocation rate for a Processor 350 representative of the channel rate of the

modem.

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to incorporate the network adaptor of Humphrey to the headend/modem

calibration of Quigley, Bryers and DOCSIS RFI05 for the interconnecting digital

computing resources.

6.      Claims 15-16, are rejected under 35 U.S.C. 103(a) as being unpatentable over

Byers, DOCSIS RFI05 and Quigley as applied to claims 1-14, 18-19 and 22 above, and

further in view of DOCSIS RFI03 et al.


Claims 15-16, Byers, DOCSIS RFI05 and Quigley teach a wireless broadband data-

over-cable system with calibration.  Quigley teaches a modem currently communicating

with said hub is calibrated by measuring the parameters of data received (FIG. 2,

Paragraph [0485] lines 1-9) referenced by ranging calibration initiated by the headend

for measurement and determination of corrections sent to the cable modem.

They do not teach polling.

Data-Over-Cable System Interface Specifications Radio Frequency Interface

Specification SP-RFIv1.1-I03-991105, hereafter referenced as DOCSIS RFI03, teaches

non-real time polling (Page 138 Section 8.2.4 lines 1-11) referenced by the Non-Real-

Time Polling Service.

DOCSIS RFI03 teaches said polling scheme is performed at a lower data rate than

other communications with said hub (Page 137 Section 8.2.2 lines 1-14, Page 138

Section 8.2.4 lines 1-11) referenced by the Non-Real-Time Polling Service which is at a

lower rate than the Real-Time Polling Service.

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to incorporate the polling scheme of DOCSIS RFI03 to the headend/modem

calibration of Quigley, Bryers and DOCSIS RFI05 for the purpose of calibration during

times of reduced congestion.

7.      Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Byers,

DOCSIS RFI05, Quigley and DOCSIS RFI03 as applied to claims 1-16, 18-19 and 22

above, and further in view of Arutyunov.


Claim 17, Byers, DOCSIS RFI05, Quigley and DOCSIS RFI03 teach a wireless

broadband access system with calibration and polling.

They do not teach polling at times when channel is free of traffic.

Arutyunov teaches said polling scheme is performed at times when a channel on which

the polling is performed is free of other traffic (FIG. 14A, column 29 lines 61-67, column

30 lines 1-5) referenced by Step 404 where the Cable Modem determines an absence

of incoming data transmission before polling the status of the CPE.

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to incorporate the polling scheme of Arutyunov to the headend/modem

calibration of Quigley, Bryers, DOCSIS RFI05 and DOCSIS RFI03 for the purpose of

more effective polling.

## *Allowable Subject Matter*

8.      Claim 21 is objected to as being dependent upon a rejected base claim, but

would be allowable if rewritten in independent form including all of the limitations of the

base claim and any intervening claims.

        Any inquiry concerning this communication or earlier communications from the

examiner should be directed to John L Shew whose telephone number is 703-305-

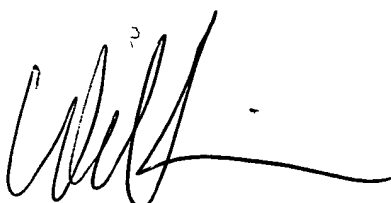.8708.  The examiner can normally be reached on 8:30am - 5:00pm.

        If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Wellington Chin can be reached on 703-305-4366.  The fax phone number

for the organization where this application or proceeding is assigned is 703-872-9306.

        Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system.  Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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